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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,195	01/14/2004	James T. Aslanis	TI-27730A.1B	3583

23494 7590 10/17/2008

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EXAMINER	
FOTAKIS, ARISTOCRATIS	
ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
10/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary	Application No.	Applicant(s)	
	10/757,195	ASLANIS ET AL.	
	Examiner	Art Unit	
	ARISTOCRATIS FOTAKIS	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/08/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18 - 68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18 - 62* is/are allowed.

6)☒ Claim(s) *63 - 68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 63 – 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jasper et al (US 5,343,499) in view of Bingham et al. ("Proposed Standard: Section 6.6 – 6.10 & 7.6 – 7.10 Encoders, Modulators, Cyclic Prefices, DACs, and Anti-aliasing Filters", Submission T1E1.4/93-120 to the T1E1.4 Working Group of Committiee T1, listed in the IDS filed 01/14/04, "Bingham" hereinafter).

Re claim 63, Jasper discloses of a method of attaining frame synchronization in a multicarrier modulation transmission system (Col 10, Line 10) in which a synchronizing frame containing at least a synchronizing pattern is transmitted in a multicarrier modulated signal (Abstract, Col 2, Lines 50 – 67 to Col 3, Lines 1 – 36), said method comprising: receiving values of the synchronizing frame (input to 660, Fig.5), the received values corresponding to complex amplitudes associated with respective ones of a plurality of tones of the multicarrier modulated signal (Col 8, Lines 24 – 57); correlating the complex amplitudes with corresponding stored values of the synchronizing pattern (#660, Fig.5, Col 8, Lines 50 – 56), to produce a comparison result; and comparing the comparison result with at least one threshold value to provide an indication of existence or loss of frame synchronization (#680, Fig.5) (Col 7, Lines 9 – 54).

However, Jasper do not disclose of a weighted synchronizing pattern corresponding to a set of j values chosen from a sequence of N values, and the equations that determine the N values.

Bingham teaches the specified equations that define the weighted synchronization pattern above in the T1E1.4/93-120 document (section 6.7.4 Synchronization Symbol).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the weighted synchronization pattern defined by equations taught by the T1E1.4/93-120 document so as to conform to the standard.

Re claim 64, Jasper discloses of the frame synchronizer determining an adjustment amount (#692, Fig.4 and 5) to restore frame synchronization when the result of the comparing step (#680, Fig.5) indicates that the frame synchronization has been lost (sync presented indication, Fig.5); and adjusting a frame boundary in accordance with the adjustment amount to restore frame synchronization (AFC estimation, Col 9, Lines 23 – 67 to Col 10, Lines 1 – 40 and Col 6, Lines 24 – 45, Fig.4).

Re claim 65, Jasper discloses of a weighting multiplier is disclosed for each corresponds to whether its associated tone is to contribute to the comparison result (Col 10, Lines 7 - 27).

Re claims 66 and 67, Jasper and Bingham teach all the limitations of claim 65. Bingham discloses of each weighting coefficient applied to a tone that is to contribute to the comparison result is one and when is not to contribute to the comparison result is zero (section 6.7.4 Synchronization Symbol, last paragraph).

Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jasper et al and Bingham et al and further in view of Hunt et al. (US 5,400,322).

Jasper and Bingham teach all the limitations of claim 63 except of wherein each weighting coefficient corresponds to a signal-to-noise ratio of its associated tone.

Hunt teaches of allocations of bits per transmission symbol to subchannels in a transmission system using multicarrier modulation are updated in response to requests from a receiver to a transmitter of the system, each request identifying a carrier whose bit allocation can be increased and a carrier whose bit allocation can be decreased, so that the total number of bits per symbol can be increased, decreased, or be unchanged. In order to synchronize bit allocation changes, a transmitted symbol counter at the transmitter and a received symbol counter at the receiver maintain synchronized symbol counts (Abstract). The bits of input data for transmission within each block or symbol period are allocated to the carriers or subchannels in a manner which is dependent upon the signal-to-noise ratios (SNRs) of the carriers or subchannels, typically so that the bit error rates of the subchannels, as monitored at the receiver, are substantially equal. As a result, the different subchannels carry different

numbers of bits in each symbol period. With an appropriate allocation of bits and transmit powers to the carriers or subchannels, such a system provides a desirable performance (Col 1, Lines 40 - 51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have each weighting coefficient corresponding to a signal-to-noise ratio of its associated tone where an appropriate allocation of bits and transmit powers to the carriers or subchannels to have a system that provides a desirable performance.

Allowable Subject Matter

Claims 18 – 62 are allowed.

Response to Arguments

Applicant's arguments filed September 8, 2008 have been fully considered but they are not persuasive.

Applicants are not acquiescing to the conclusion that the Bingham reference is in fact prior art to the claims in this case. Examiner relies on the date of the Bingham reference (May 10, 2003).

Applicants submit that the Bingham reference does not teach the correlating of complex amplitudes of received synchronizing flame values with stored values of the synchronizing pattern, in a manner that is weighted by a weighting coefficient for each of the plurality of tones. Applicants further submit that Examiner's characterization does not indicate whether the "weighted synchronization pattern" refers to transmitted or received signals, more specifically whether it refers to the performing of a correlation or rather the generating of a transmitted signal.

Examiner submits that Jasper teaches of the correlation with a synchronization pattern in a multi-carrier system but does not teach of the weighting of the synchronization pattern. Bingham discloses of the synchronization pattern that is used to synchronize the boundaries of the symbol in the transmitter. Bingham also discloses of weighting the synchronization pattern for each tone. Examiner submits that the weighted synchronization pattern used in the transmitter inherently is used in the receiver. The receiver needs to know of the weigthed synchronization used in the transmitter so as to maintain synchronization.

Applicants submit that the Hunt et al. reference merely discloses changing the number of bits allocated to each of the multiple tones in multicarrier modulation communications, based on signal-to-noise ratio. These teachings have nothing to do with the synchronizing of frame timing between a receiver to a transmitter, to which claim 63 is expressly directed.

Examiner submits that the Hunt reference teaches the significance of the SNR on the bit allocation of each subcarrier. For a poor SNR the subcarrier is unused or discarded where the power assigned to this subcarrier is zero. Therefore the combination of Jasper, Bingham and Hunt is proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aristocratis Fotakis/

Examiner, Art Unit 2611

/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611